GENETICS TEST STUDY GUIDE

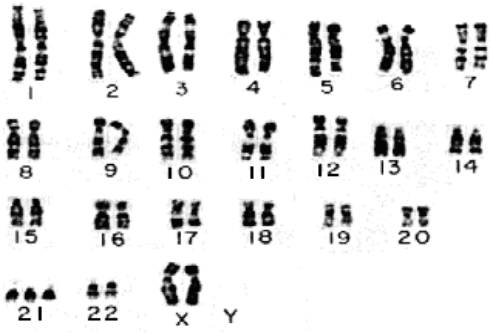
NAME:_____
DATE:_____

1. Tongue rolling (R) is dominant over non-tongue rolling (r). If a person cannot roll their tongue, what would be his/her genotype? _____
2. Genetic disorders like Down syndrome are caused by _____.
3. The failure of one or more pairs of chromosomes to separate is called _____.

Round seed pods are dominant over wrinkled seed pods. The Punnett square below shows a cross between parents with round and wrinkled seed pods. Use the following diagram to answer the next three questions.

	R	r
r	A	B
r	D	C

4. What is the phenotype of the offspring in block A? _____
5. What is the genotype of the offspring in blocks B and D? _____
6. What is the phenotype of the offspring in block C? _____
7. In pea plants, purple flowers are dominant to white flowers. If two heterozygous purple plants are crossed, what percent of the offspring will probably be white? _____



8. Examination of the diagram indicates that these are the chromosomes of a _____ with _____ _____.
9. In cats, gene E produces yellow fur and gene B produces black fur. A cat that inherits both of these genes has patches of yellow and black fur and is known as a calico. The alleles for black or yellow are located on the X-chromosome. Calico coat color is most likely due to _____ _____-_____ genes.
10. Complete the Punnett square below for a cross of cats.

	X^B	Y
X^B		
X^E		

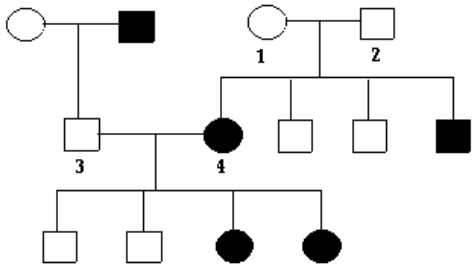
11. What is the phenotype of the male cat? _____
12. What is the phenotype of the female cat? _____
13. List what the offspring look like. _____
14. In cows, long hair is dominant to short hair. In a cow that is heterozygous for long hair, what percentage of the cells undergoing meiosis will carry the dominant allele? _____.

15. Forms of the same gene with different phenotypic expressions are called _____.

16. In corn plants, green (G) is dominant to albino (g). What is the chance of a heterozygous cross producing albino corn plants? _____

17. When using Punnett squares to show inherited probability, a capital letter stands for the _____ allele.

18. In humans, a disease inherited by a single pair codominant genes is _____ _____.



Using the genetic pedigree above, answer the following questions.

19. Person #4 represents _____.

20. Person #3 represents a _____.

21. Person #1 had to be _____.

22. A color-blind woman marries a man who has normal color vision. What are their chances of having a color-blind daughter? _____

23. A genetic pedigree showing that only males are affected by a certain disorder is evidence of what type of inheritance? _____

24. Mendel's early work with pea plants demonstrated a significant genetic discovery. The crossing of homozygous tall pea plants with homozygous short pea plants always resulted in tall plants and demonstrated that tallness in pea plants is a trait that is _____.

25. An allele that expresses itself in a hybrid is a(n) _____.

26. An organism in which two alleles for a trait are different is _____.

27. Traits that are found on the X chromosome are said to be _____-_____.

28. The actual genetic makeup of an organism is called its _____.

29. What an organism looks like is referred to as its _____.

30. In a Mendel's experiment, the monohybrid cross of the short and tall plants in the P_I generation resulted in 100 % heterozygous plants in the F_I generation. What was the phenotypic ratio of the F_2 generation?_____

31. Use the following terms in a sentence:

    a. Genetic engineering
    b. Restriction enzymes
    c. Gel electrophoresis
    d. Recombinant DNA
    e. Cloning
    f. Polymerase chain reaction (PCR)
    g. DNA fingerprinting